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TITLE: **Biphasic** selective epoxidation of styrene by t-butyl hydroperoxide to styrene oxide using potassium chromate or dichromate catalyst in aqueous mediumAUTHOR(S): **Choudhary, Vasant. R.; Patil, Nilesch****S.;** Chaudhari, Nitin K.; Bhargava, Suresh K.

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ABSTRACT:

Styrene oxide with high selectivity (>60%) at high conversion (>50%) was produced by **biphasic** epoxidn. of styrene by t-Bu hydroperoxide, using potassium chromate or potassium dichromate as catalyst in the presence of water. The reactants and products exist in the non-aqueous (organic) phase, while the catalyst exists in the aqueous phase, and is easily recovered. Both potassium chromate and potassium dichromate catalysts show high activity in the ***biphasic*** epoxidn., however, the preferable catalyst is potassium chromate.

SUPPL. TERM: styrene epoxidn tertbutyl hydroperoxide potassium chromate catalyst aq medium

INDEX TERM: Epoxidation catalysts

~~(aqueous **biphasic** selective epoxidn. of styrene by t-Bu hydroperoxide to styrene oxide using potassium chromate or potassium dichromate recoverable catalyst)~~

INDEX TERM: 96-09-3P, Styrene oxide

ROLE: IMF (Industrial manufacture); PREP (Preparation)

(aqueous **biphasic** selective epoxidn. of styrene by t-Bu hydroperoxide to styrene oxide using potassium chromate or potassium dichromate recoverable catalyst)

INDEX TERM: 75-91-2, tert-Butyl hydroperoxide 100-42-5

, Styrene, reactions

ROLE: RCT (Reactant); RACT (Reactant or reagent)

(aqueous **biphasic** selective epoxidn. of styrene by t-Bu hydroperoxide to styrene oxide using potassium chromate or potassium dichromate recoverable catalyst)

INDEX TERM: 7778-50-9, Potassium dichromate 7789-00-6,

Potassium chromate

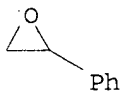
ROLE: CAT (Catalyst use); USES (Uses)

(epoxidn. catalyst; aqueous **biphasic** selective epoxidn. of styrene by t-Bu hydroperoxide to styrene oxide using potassium chromate or potassium dichromate recoverable catalyst)

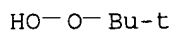
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD.

- REFERENCE(S):
- (1) Anon; Aqueous-Phase Organometallic Catalysis 1998
 - (2) Arends, I; Appl Catal A: Gen 2001, V212, P175 HCAPLUS
 - (3) Choudhary, V; Catal Lett 2003, V89, P55 HCAPLUS
 - (4) Coperet, C; Chem Commun 1997, P1565 HCAPLUS
 - (5) Fu, Z; Micropor Meso Mater 1999, V29, P351 HCAPLUS
 - (6) Hage, R; Nature (London) 1994, V369, P637 HCAPLUS
 - (7) Koner, S; J Mol Catal A 1999, V150, P295 HCAPLUS
 - (8) Kumar, S; J Catal 1995, V156, P163 HCAPLUS
 - (9) Kuznetsova, N; J Mol Catal A 1996, V108, P135 HCAPLUS
 - (10) Laha, S; J Catal 2001, V204, P64 HCAPLUS
 - (11) Lutz, J; Kirk-Othmer Encyclopedia of Chemical Technology, third ed 1980, V9, P251 HCAPLUS
 - (12) Sotelo, J; Chem Commun 1999, P549 HCAPLUS
 - (13) Srinivas, N; J Mol Catal A 2001, V179, P175
 - (14) Swern, D; Organic Peroxides 1971, V2 HCAPLUS
 - (15) Van Grieken, R; Catal Today 2000, V61, P49 HCAPLUS
 - (16) Yang, Q; Appl Catal A 2000, V194-195, P507 HCAPLUS

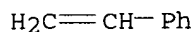
IT 96-09-3P, Styrene oxide
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (aqueous **biphasic** selective epoxidn. of styrene by t-Bu
 hydroperoxide to styrene oxide using potassium chromate or potassium
 dichromate recoverable catalyst)
 RN 96-09-3 HCAPLUS
 CN Oxirane, phenyl- (9CI) (CA INDEX NAME)



IT 75-91-2, tert-Butyl hydroperoxide 100-42-5, Styrene,
 reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (aqueous **biphasic** selective epoxidn. of styrene by t-Bu
 hydroperoxide to styrene oxide using potassium chromate or potassium
 dichromate recoverable catalyst)
 RN 75-91-2 HCAPLUS
 CN Hydroperoxide, 1,1-dimethylethyl (9CI) (CA INDEX NAME)

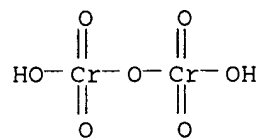


RN 100-42-5 HCAPLUS
 CN Benzene, ethenyl- (9CI) (CA INDEX NAME)



IT 7778-50-9, Potassium dichromate 7789-00-6, Potassium
 chromate
 RL: CAT (Catalyst use); USES (Uses)
 (epoxidn. catalyst; aqueous **biphasic** selective epoxidn. of
 styrene by t-Bu hydroperoxide to styrene oxide using potassium chromate
 or potassium dichromate recoverable catalyst)
 RN 7778-50-9 HCAPLUS

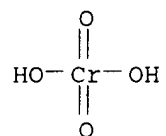
CN Chromic acid (H₂Cr₂O₇), dipotassium salt (9CI) (CA INDEX NAME)



● 2 K

RN 7789-00-6 HCAPLUS

CN Chromic acid (H₂CrO₄), dipotassium salt (8CI, 9CI) (CA INDEX NAME)



● 2 K